

# Audit



# Report

OFFICE OF THE INSPECTOR GENERAL

**NAVY USE OF VARIABLE HOUSING  
ALLOWANCE SURVEY DATA**

Report No. 98-018

November 10, 1997

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**Department of Defense**

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### **Acronyms**

NAVFAC  
VHA

Naval Facilities Engineering Command  
Variable Housing Allowance



**INSPECTOR GENERAL  
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November 10, 1997

**MEMORANDUM FOR COMMANDER, NAVAL FACILITIES ENGINEERING  
COMMAND  
DIRECTOR, PER DIEM, TRAVEL, AND  
TRANSPORTATION ALLOWANCE COMMITTEE**

**SUBJECT: Audit Report of the Navy Use of Variable Housing Allowance Survey  
Data (Report No. 98-018)**

We are providing this audit report for information and use. This report addresses Navy use of the variable housing allowance survey responses to determine family housing requirements.

Discussions with Navy management personnel were considered in preparing this final report. Because draft report Recommendations 1.a. and b. were deleted, comments to this final report are not required.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Wayne K. Million, Audit Program Director, at (703) 604-9312 (DSN 664-9312) or Mr. Henry P. Hoffman, Audit Project Manager, at (703) 604-9269 (DSN 664-9269). See Appendix C for the report distribution. The audit team members are listed inside the back cover.

Robert J. Lieberman  
Assistant Inspector General  
for Auditing

## **Office of the Inspector General, DoD**

**Report No. 98-018**  
(Project No. 6CG-0025.04)

**November 10, 1997**

### **Navy Use Of Variable Housing Allowance Survey Data**

#### **Executive Summary**

**Introduction.** During the audit of the DoD Family Housing Requirements Determination, a review of the Navy's use of data to determine family housing requirements became a concern. This report discusses the Navy use of the variable housing allowance survey data to determine family housing requirements.

**Audit Objective.** The primary audit objective was to evaluate whether estimated housing requirements were valid and supported the need for constructing additional DoD family housing. A specific objective was to determine whether family housing requirements developed by the Naval Facilities Engineering Command were properly supported, and identified in an economical manner. We expanded our objective to include a review of the Navy's use of the variable housing allowance survey responses as it relates to the family housing requirements determination process.

**Audit Results.** There were flaws in the Naval Facilities Engineering Command's use of variable housing allowance survey data for determining family housing requirements at Naval organizations. As a result, the Navy overstated the number of personnel considered as unacceptably housed by at least 25 percent. Conversion of this overstated family housing data could result in the Navy programming excessive funds for future family housing. However, after the completion of our audit field work, the Navy implemented procedures to improve the variable housing allowance survey data.

**Summary of Recommendations.** Because the Navy has already implemented corrective actions, this final report contains no recommendations.

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## **Part I - Audit Results**

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## **Audit Background**

The Naval Facilities Engineering Command (NAVFAC) determines family housing requirements at Navy installations. This process evaluates the family housing supply and demand at each Navy installation, identifies installations with housing shortages, and describes the size and composition of the shortages. NAVFAC uses the Family Housing Requirements System (a computer based model) to calculate family housing requirements data to justify construction and acquisition programs to the Office of the Secretary of Defense and Congress.

## **Audit Objectives**

The primary audit objective was to evaluate whether housing requirements are valid and support the need for DoD family housing construction. A specific objective was to determine whether family housing requirements developed by NAVFAC were properly identified and supported in an economical manner. We expanded our objective to include a review of Navy use of the variable housing allowance (VHA) survey response as it relates to the family housing requirements determination process. We also announced an objective to review the management control program as it applied to the primary objective.

This report provides the results of the audit of Navy use of the VHA survey data as it applies to the family housing requirements determination process. See Appendix A for a discussion of the audit scope and methodology, management control program, and a summary of prior coverage related to the audit objectives.

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## Navy Use of Variable Housing Allowance Survey Data

The VHA survey data and the process the Naval Facilities Engineering Command uses to determine estimated family housing requirements were flawed. This condition occurred because the Naval Facilities Engineering Command did not edit the survey data, and improperly projected the VHA survey results to the total universe. As a result, the Navy overstated the number of personnel considered as unacceptably housed by at least 25 percent. Conversion of this overstated family housing data could result in the Navy programming excessive funds for family housing in the future. However, after the completion of our audit field work, the Navy implemented procedures to edit and improve the variable housing allowance survey data and to evaluate the nonrespondent surveys.

### Sources of Data

The Navy Family Housing Requirements System combines data from the Base Loading System, VHA survey, and military, and community housing inventory data to determine if a need exists for family housing.

**Base Loading System.** The Base Loading System is the official source of personnel strength information for Navy planning and programming at Naval shore organizations. The Base Loading System contains the personnel strength data for the current year and 5 years into the future for use in the family housing requirements process. The Base Loading System is provided by the Bureau of Naval Personnel.

**Variable Housing Allowance Survey Data.** The Per Diem, Travel, and Transportation Allowance Committee developed the VHA survey form for the purpose of determining per diem rates. The NAVFAC family housing office added questions to the VHA survey to help determine Navy family housing requirements. Specifically, NAVFAC uses the survey data to determine the military member's housing suitability, separation status, and other family housing characteristics.

**Military Housing Inventory Data.** The Navy's current military housing inventory data comes from the Inventory and Occupancy System. The system contains data on military owned and controlled family housing. The Navy's future military inventory data comes from the Future Inventory Reporting System which contains data that includes expected gains and losses of military owned and controlled family housing. The Facilities Systems Office provides automated data processing support and maintains both systems.

**Community Housing Inventory Data.** If construction is planned, the Navy requires a family housing market analysis to determine the community housing



## Navy Use of Variable Housing Allowance Survey Data

inventory. The NAVFAC Engineering Field Divisions hire a contractor to perform the analysis. The analysis is compared and validated against the results of the Family Housing Requirements Systems. If no construction is planned, the Navy uses census data and information from the organization (i.e., local Board of Realtors or planning commissions), to help determine the housing deficit or surplus.

The analysis focuses on private sector rental and subsidized housing that may be available to military families within the market area. The analysis assesses the existing housing supply and provides a projection of rental assets. The goal of the market analysis is to identify and quantify the total number of units within the market area, and the portion of the total which would represent the military families' anticipated market share (fair share).

**Housing Requirements.** NAVFAC combines and processes the data to determine family housing deficits or surpluses by paygrades and bedroom composition. Once the data is gathered, a preliminary DD Form 1523, "Military Family Housing Justification," is prepared and sent to NAVFAC Engineering Field Divisions, and the applicable installation for review and validation.

## **Survey Distribution**

NAVFAC forwards VHA survey forms to all Navy organizations each June. Each organization coordinates and distributes surveys to service members that receive Basic Allowance for Quarters. A contractor processes completed survey forms during August of each year. The contractor compiles the survey data and forwards it to the Defense Manpower Data Center. The Navy obtains the VHA survey responses from the Defense Manpower Data Center. However, there is no verifying or editing of the information to determine whether it is valid.

The Navy uses the VHA survey information as part of the data to determine their family housing requirements. The integrity of the VHA survey data is important because it has a direct impact on the housing surplus or deficit calculation.

**VHA Survey Responses.** NAVFAC sent out approximately 181,000 VHA surveys in 1995 and approximately 113,000 surveys were returned (for a return rate of 62 percent). This information was used to determine family housing requirements for FY 1998. NAVFAC determined that 12,688 respondents from 113,000 surveys were unacceptably housed because of the following reasons: involuntary separation, excessive cost, excessive commuting distance, substandard dwelling conditions, or insufficient bedrooms (see Table 1).

**Table 1. Unacceptably Housed in the Community**

<u>Category</u>	<u>Survey Respondents</u>
Involuntary Separation <sup>1</sup>	107
Cost <sup>2</sup>	8,579
Commute <sup>3</sup>	1,164
Condition <sup>4</sup>	2,552
Bedroom <sup>5</sup>	<u>286</u>
<b>Total</b>	<b>12,688*</b>

<sup>1</sup>If a respondent does not bring their family to their current duty location because adequate family housing is not available, the service member is considered unacceptably housed because of involuntary separation.

<sup>2</sup>If a respondent pays more than their maximum allowable housing cost, the service member is considered unacceptably housed because of cost.

<sup>3</sup>If a respondent lives more than an hour commuting distance from the duty location, the service member is considered unacceptably housed because of commute.

<sup>4</sup>If the respondent's current housing has incomplete utilities, is in an unsafe neighborhood, or has other substandard conditions, the service member is considered unacceptably housed because of conditions.

<sup>5</sup>If the current residence of the respondent does not have at least one bedroom for each dependent, the service member is considered unacceptably housed because of lack of bedrooms.

\*This 12,688 was projected to 21,255.

NAVFAC projected the 12,688 respondents that were determined to be unacceptably housed to the total universe and determined that 21,255 would have been classified as unacceptably housed if everyone had responded. We reviewed survey responses from unacceptably housed individuals because they represent a valid housing requirement.

**Analysis of VHA Survey Responses.** We developed specific criteria to analyze the 8,579 respondents who were unacceptably housed because of cost, since they represented more than half of the total population of unacceptably housed. We did not analyze respondents who were deemed to be unacceptably housed because of involuntary separation, commute, condition, or bedrooms.

**Criteria Used to Analyze Unacceptably Housed Because of Cost.** We did not consider any respondent who would also be unacceptably housed because of commute or condition. If an individual was unacceptably housed because of

## Navy Use of Variable Housing Allowance Survey Data

cost and also had a commute of more than an hour, we did not include that individual in our evaluation. The individual was excluded because, if the cost was correctly adjusted, the individual would still be a housing requirement, not because of cost, but because of their commute. Criteria for unreasonable cost is determined by any of the following factors:

- Rent \$3,000 per month or more.
- Utility costs of \$500 per month or more.
- Maintenance costs of \$70 per month or more.
- Amounts listed as a condominium or homeowners fee (NAVFAC considers any respondent who owns their residence as acceptably housed).
- Insurance costs of \$40 per month or more.

Because living expenses vary depending upon geographic location, conservative estimates (higher than average costs) were used. Respondents paygrades were also an additional factor taken into consideration. For example, while it is possible that an admiral might pay \$3,000 per month for rent, it is less likely an error than a respondent, in paygrade E-3, that reported rent of \$3,000 per month. Similarly, insurance costs for rental property vary between \$100 and \$200 annually, or approximately \$20 per month. In the case of insurance, only amounts reported over \$480 annually or \$40 per month were considered unreasonable. For example, if a respondent reported paying \$345 per month (\$4,140 annually) in insurance costs, it is more likely an error, because it is about \$4,000 more than average. We recognize that these errors are probably not intentional; that Service members may have entered annual costs as monthly costs, for example, but the fact is that such errors can be the determining factor as to whether the respondent is classified as being suitably or unacceptably housed.

**Results of Analysis.** We analyzed the housing costs of respondents listed as unacceptably housed because of cost (8,579 of the 12,688 respondents), to detect any errors and determine if any housing costs were unreasonable. We determined that 2,153 of the 8,579 deemed unacceptably housed because of cost (25 percent) are likely to be in error based on the conservative criteria. Table 2 identifies the number of errors by category.

**Table 2. Reported Unreasonable Cost**

<u>Category</u>	<u># of Survey Respondents</u>
Insurance	1,104
Maintenance	803
Home Owner Fee	93
Utility	73
Condominium Fee	64
Rent	<u>26</u>
<b>Total</b>	<b>2,556<sup>1</sup></b>

<sup>1</sup>This total represents 2,153 families. This figure (2,556) is higher because there are some multiple entries. For example, one respondent reported high insurance and high maintenance costs. That one respondent is counted under each category.

**Projection of VHA Survey Results.** Navy projections of the VHA survey results to the total universe were invalid. Because of the large number of non-respondents to the survey, the lack of followup or analysis of the non-respondents, and the potential bias introduced by attempting to project total housing requirements from a self-selecting sample, we determined that the final results were not likely to represent the true Navy population or that population's requirement for housing. Rather, it represented some unknown, undefined portion of the total population which may have been more in need of housing than the part represented by the sample nonrespondents.

**Impact of Errors.** We recognize that construction is not planned at all Navy locations and as such, all errors, if not corrected, would not necessarily result in a funded construction project. However, based on the errors we discovered, the overstated unacceptably housed errors could represent a significant potential overstatement of future Navy housing requirements. This potential overstatement could be about 25 percent greater because the Navy projects the errors to the total Navy family housing population.

**Per Diem, Travel, and Transportation Committee.** We met with personnel from the Per Diem, Travel, and Transportation Allowance Committee to discuss the possibility of getting a 100 percent rate of return of VHA surveys. We found that the VHA survey will probably be replaced by Housing Allowance Reform. Because the Navy, more than the other Services, uses data from the VHA survey, the Per Diem, Travel, and Transportation Allowance Committee plans to meet with all Services to initiate procedures to collect information to replace the VHA survey.

### **Summary**

The Navy used the VHA survey data as part of the process to determine family housing requirements. We found a 25 percent error rate in the number of unacceptably housed Service members responding to the VHA survey, which caused the family housing requirements to be overstated. Additionally, the Navy projected the results of the VHA surveys, including the errors, to the total population, which caused the results to be unsupportable.

### **Management Actions**

The Navy requested a briefing after a draft of this report was issued and provided verbal comments. During this meeting with NAVFAC personnel, we discussed problems with the unedited VHA survey data and the projection of that data to the total population. NAVFAC immediately implemented edit checks of current and any future VHA survey data. NAVFAC officials reviewed all survey results, not just the "unacceptably housed." Where we found 2,153 errors; NAVFAC, using their own criteria, determined that there was almost 3,000 errors. Additionally, the Navy implemented procedures to review the survey nonrespondents and evaluate the compatibility of the respondent and nonrespondent data. Because the Navy had already implemented these corrective actions, we deleted draft report Recommendations 1.a. and b.

## **Part II - Additional Information**

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## Appendix A. Audit Process

### Scope

This economy and efficiency audit reviewed the military family housing requirements process for the Navy. We reviewed DoD guidance, conducted on-site visits to assess the implementation of guidance, and reviewed the process for preparation of the DD Form 1523 and other related documentation.

NAVFAC provided a database of approximately 113,000 VHA surveys containing their universe of responses. We queried the database to extract the 12,688 unacceptably housed survey responses. We chose a 100 percent sample of respondents that were unacceptably housed because of cost. See Part I for a description of the methodology.

### Methodology

**Use of Computer-Processed Data.** We did not evaluate the general and application controls of the Family Housing Requirements System that processes the VHA survey data, although we relied on data produced by that system to conduct the audit. The controls were not evaluated because of time constraints, however, this did not affect the results of the audit.

**Use of Technical Assistance.** Analysts from the Quantitative Methods Division, Analysis, Planning and Technical Support Directorate, Office of the Assistant Inspector General for Auditing, DoD assisted in this audit. Analysts evaluated the method used by the NAVFAC to project the results of VHA survey data.

**Audit Type, Dates and Standards.** This audit was performed from May 1996 through January 1997 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD.

**Contacts During the Audit.** We visited or contacted individuals and organizations within the DoD. Further details are available on request.

### Management Control Program Review

DoD Directive 5010.38, "Management Control Program," August 26, 1996, requires DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

**Scope of Review of the Management Control Program.** We reviewed the adequacy of management controls over the Navy process for family housing requirements. Specifically, we reviewed the management controls over the preparation of the DD Form 1523.

**Adequacy of Management Controls.** We identified a material management control weakness as defined by DoD Directive 5010.38. Internal controls were not effective to ensure that the Navy used accurate and reliable data to determine family housing requirements. Implementation of the Navy edit checks of current and any future VHA survey data, and the procedures to review the survey nonrespondents and evaluate the compatibility of the respondent and nonrespondent data, will improve the accuracy and reliability of the data to determine family housing requirements and eliminate the control weakness. The Navy had not previously detected or reported this weakness.

## Prior Coverage

Inspector General, DoD, Report No. 96-200, "Quick-Reaction Report on Military Family Housing Construction at Marine Corps Base Hawaii Kaneohe Bay," July 26, 1996 states that the requirements for several military family housing projects at the Marine Corps Base Hawaii Kaneohe Bay are unsupported because the number of needed family housing units is unknown. The Marine Corps plan does not reflect current market trends and the number of military personnel to be based in the area is projected to be less than when the plan was formulated. The report recommended that all military family housing constructions projects be placed on administrative withhold and that the Marine Corps Base Hawaii Kaneohe Bay perform a new market analysis to justify new family housing construction projects. Management generally concurred with the recommendations, however, the Navy will proceed with two projects.

Inspector General, DoD, Report No. 95-013, "Development of Ford Island, Pearl Harbor, Hawaii," October 19, 1994, states that the Army, Navy, Air Force, and Marine Corps on Oahu were duplicating the responsibility of the Oahu Consolidated Family Housing Office, U.S. Army, Pacific. Navy plans to build 780 military family housing units on Ford Island and, more generally, the U.S. Pacific Command's "Strategy 8000 Family Housing Acquisition Plan" were not based on valid requirements. The report recommended that all military family housing construction projects on Ford Island be suspended until requirements were adequately justified and validated. Management generally concurred with the recommendations.

Inspector General, DoD, Report No. 93-030, "DoD Family Housing Requirements Computation," December 11, 1992, states that the Navy and the Air Force overstated family housing requirements used to support five Section 801 projects. The housing survey procedures and the DoD suitability evaluation criteria used to determine family housing requirements were not followed or consistently applied. In addition, Navy and Air Force management did not review or validate the data in the family housing survey and excluded available family housing from private sector housing computations. The Navy and Air



## **Appendix A. Audit Process**

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Force did not have guidance on computing the military fair share ratio used in a housing market analysis. This report recommended changes in the Navy and Air Force housing survey processes and changes in the DoD suitability evaluation criteria used in the family housing requirement determination process. Management concurred with the recommendations.

Naval Audit Service Report No. 065-C-94, "Navy Family Housing Requirements," September 26, 1994, states that the Naval Facilities Engineering Command overstated housing requirements because of flawed procedures, poor implementation of those procedures, and significant problems with the accuracy of data on which estimated requirements were based. The Naval Audit Service recommended delaying planned construction and redetermining family housing requirements for all areas using new combined survey procedures and improved sampling and data validation procedures. Management concurred with the recommendations and the monetary benefits.

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